

CLAIMS

1. An agent for preventing HIV infection in transfusing blood or using a blood product, which comprises
5 a compound having a CCR antagonistic effect.

2. An agent as claimed in claim 1, wherein CCR is CCR5 and/or CCR2.

3. An agent as claimed in claim 1, wherein the compound having CCR antagonistic effect is N-(3,4-dichlorophenyl)-1-(methylsulfonyl)-N-{3-[4-((4-[(methylsulfonyl)amino]phenyl)sulfonyl)-1-piperidinyl]propyl}-4-piperidinecarboxamide, N-(3-chlorophenyl)-1-(methylsulfonyl)-N-(3-[4-[4-(methylsulfonyl)benzyl]-1-piperidinyl]propyl)-4-piperidinecarboxamide, N-(3-[4-[4-(aminocarbonyl)benzyl]-1-piperidinyl]propyl)-4-piperidinecarboxamide, N-(3-[4-[4-(aminocarbonyl)benzyl]-1-piperidinyl]propyl)-N-(3-chloro-4-methylphenyl)-4-piperidinecarboxamide, N-(3,4-dichlorophenyl)-N-(3-[4-[4-(ethylsulfonyl)benzyl]-1-piperidinyl]propyl)-4-piperidinecarboxamide, N-(3,4-dichlorophenyl)-N-(3-[4-[4-(isopropylsulfonyl)benzyl]-1-piperidinyl]propyl)-4-piperidinecarboxamide, N-(3-chlorophenyl)-N-(3-[4-[4-(isopropylsulfonyl)benzyl]-1-

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piperidinyl}propyl)-1-(methylsulfonyl)-4-
 piperidinecarboxamide, N-(3-chlorophenyl)-N-(3-[4-[4-
 (ethylsulfonyl)benzyl]-1-piperidinyl}propyl)-1-
 (methylsulfonyl)-4-piperidinecarboxamide, N-(3,4-
 5 dichlorophenyl)-1-(methylsulfonyl)-N-(3-[4-[4-
 (methylsulfonyl)benzyl]-1-piperidinyl}propyl)-4-
 piperidinecarboxamide, N-(3-[4-[4-(aminocarbonyl)benzyl]-1-
 piperidinyl}propyl)-N-(3-chloro-4-methylphenyl)-1-
 (methylsulfonyl)-4-piperidinecarboxamide, N-[3-(4-benzyl-1-
 10 piperidinyl)propyl]-N'-(4-chlorophenyl)-N-phenylurea, N'-
 (4-chlorophenyl)-N-[3-[4-(4-fluorobenzyl)-1-
 piperidinyl]propyl]-N-phenylurea, N'-(4-chlorophenyl)-N-(3-[4-[4-
 {4-(4-morpholinylsulfonyl)benzyl]-1-piperidinyl}propyl)-
 N-phenylurea, N'-(4-chlorophenyl)-N-(3-[4-[4-(4-
 15 methylsulfonyl)benzyl]-1-piperidinyl}propyl)-N-phenylurea,
 4-{[1-(3-[(4-chloroanilino)carbonyl]anilino}propyl)-4-
 piperidinyl]methyl}benzamide, N-[3-(4-benzyl-1-
 piperidinyl)propyl]-N-(3,4-dichlorophenyl)-1-methyl-5-oxo-
 20 3-pyrrolidinecarboxamide, 1-benzyl-N-[3-(4-benzyl-1-
 piperidinyl)propyl]-5-oxo-N-phenyl-3-pyrrolidinecarboxamide,
 N-[3-(4-benzyl-1-piperidinyl)propyl]-1-(2-chlorobenzyl)-5-
 oxo-N-phenyl-3-pyrrolidinecarboxamide, N-(3,4-
 dichlorophenyl)-N-[3-[4-(4-fluorobenzyl)-1-
 25 piperidinyl]propyl]-1-methyl-5-oxo-3-pyrrolidinecarboxamide,
 N-[3-(4-benzyl-1-piperidinyl)propyl]-5-oxo-N-phenyl-1-

(2,2,2-trifluoroethyl)-3-pyrrolidinecarboxamide, N-(3,4-dichlorophenyl)-N-(3-{4-[4-(methylsulfonyl)benzyl]-1-piperidinyl}propyl)-2-[1-(methylsulfonyl)-4-piperidinyl]acetamide, N-(3,4-dichlorophenyl)-N-(3-{4-[4-(isopropylsulfonyl)benzyl]-1-piperidinyl}propyl)-2-[1-(methylsulfonyl)-4-piperidinyl]acetamide, 3-(1-acetyl-4-piperidinyl)-N-(3,4-dichlorophenyl)-N-(3-{4-[4-(methylsulfonyl)benzyl]-1-piperidinyl}propyl)propanamide,
5 or N-(3,4-dichlorophenyl)-4-hydroxy-1-(methylsulfonyl)-N-(3-{4-[4-(methylsulfonyl)benzyl]-1-piperidinyl}propyl)-4-piperidinecarboxamide or a salt thereof.

4. An agent as claimed in claim 1, wherein the compound having CCR antagonistic effect is N-methyl-N-[4-[[[2-(4-methylphenyl)-6,7-dihydro-5H-benzocyclohepten-8-yl]carbonyl]amino]benzyl]piperidinium iodide, N-methyl-N-[4-[[[7-(4-methylphenyl)-2,3-dihydro-1-benzoxepin-4-yl]carbonyl]amino]benzyl]piperidinium iodide, N-[4-[N-methyl-N-(tetrahydropyran-4-yl)aminomethyl]phenyl]-7-(4-methylphenyl)-2,3-dihydro-1-benzoxepin-4-carboxamide, N-[4-[N-methyl-N-(tetrahydropyran-4-yl)aminomethyl]phenyl]-7-(4-morpholinophenyl)-2,3-dihydro-1-benzoxepin-4-carboxamide,
15 7-(4-ethoxyphenyl)-N-[4-[N-methyl-N-(tetrahydropyran-4-yl)aminomethyl]phenyl]-2,3-dihydro-1-benzoxepin-4-carboxamide, N,N-dimethyl-N-[4-[[[2-(4-methylphenyl)-6,7-dihydro-5H-benzocyclohepten-8-yl]carbonyl]amino]benzyl]-N-

(tetrahydropyran-4-yl) ammonium iodide, N-methyl-N-[4-[[[7-(4-methylphenyl)-3,4-dihydronaphthalen-2-yl]carbonyl]amino]benzyl]piperidinium iodide, N,N-dimethyl-N-(4-((2-(4-methylphenyl)-6,7-dihydro-5H-benzocyclohepten-8-yl)carbonyl)amino)benzyl)-N-(4-tetrahydropyranyl)ammonium chloride, N,N-dimethyl-N-((7-(4-methylphenyl)-2,3-dihydro-1-benzoxepin-4-yl)carbonyl)amino)benzyl)-N-(4-oxocyclohexyl)ammonium chloride, N-(4-((7-(4-ethoxyphenyl)-2,3-dihydro-1-benzoxepin-4-yl)carbonyl)amino)benzyl)-N,N-dimethyl-N-(4-tetrahydropyranyl)ammonium chloride, N-[4-[N-methyl-N-(tetrahydropyran-4-yl)aminomethyl]phenyl]-7-(4-propoxyphenyl)-1,1-dioxo-2,3-dihydro-1-benzothiepin-4-carboxamide, 7-(4-butoxyphenyl)-N-[4-[N-methyl-N-(tetrahydropyran-4-yl)aminomethyl]phenyl]-1,1-dioxo-2,3-dihydro-1-benzothiepin-4-carboxamide, 7-[4-[N-methyl-N-(2-propoxyethyl)amino]phenyl]-N-[4-[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-1,1-dioxo-2,3-dihydro-1-benzothiepin-4-carboxamide, 7-[4-(2-ethoxyethoxy)phenyl]-N-[4-[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-1,1-dioxo-2,3-dihydro-1-benzothiepin-4-carboxamide, N-[4-[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-7-[4-(2-propoxyethoxy)phenyl]-1,1-dioxo-2,3-dihydro-1-benzothiepin-4-carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-N-[4-[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-7-[4-(2-propoxyethoxy)phenyl]-1,1-dioxo-2,3-dihydro-1-benzothiepin-4-carboxamide,

methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-1,1-dioxo-2,3-dihydro-1-benzothiepin-4-carboxamide, 7-[4-(2-ethoxyethoxy)-3,5-dimethylphenyl]-N-[4-[[N-methyl-N-(tetrahydro-2H-pyran-4-yl)amino]methyl]phenyl]-1,1-dioxo-
5 2,3-dihydro-1-benzothiepin-4-carboxamide, 7-[2-chloro-4-(2-propoxyethoxy)phenyl]-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-1,1-dioxo-2,3-dihydro-1-benzothiepin-4-carboxamide, 7-(3-methyl-4-propoxypyhenyl)-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-
10 1,1-dioxo-2,3-dihydro-1-benzothiepin-4-carboxamide, 7-(3,4-dipropoxypyhenyl)-N-(4-((N-methyl-N-(tetrahydro-2H-pyran-4-yl)amino)methyl)phenyl)-1,1-dioxo-2,3-dihydro-1-benzothiepin-4-carboxamide, 7-[4-(2-ethoxyethoxy)phenyl]-1-ethyl-N-[4-[[N-methyl-N-(tetrahydropyran-4-
15 yl)amino]methyl]phenyl]-2,3-dihydro-1-benzoazepin-4-carboxamide, 1-ethyl-7-[4-(2-propoxyethoxy)phenyl]-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-
2,3-dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-ethoxyethoxy)phenyl]-1-ethyl-N-[4-[[N-methyl-N-(
20 tetrahydropyran-4-yl)amino]methyl]phenyl]-2,3-dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-ethoxyethoxy)phenyl]-1-formyl-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-2,3-dihydro-1-benzoazepin-4-carboxamide, 1-formyl-7-[4-(2-propoxyethoxy)phenyl]-N-[4-
25 [[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-

2,3-dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-
butoxyethoxy)phenyl]-1-formyl-N-[4-[N-methyl-N-
(tetrahydropyran-4-yl)amino]methyl]phenyl]-2,3-dihydro-1-
benzoazepin-4-carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-N-
5 [4-[N-methyl-N-(tetrahydropyran-5-yl)amino]methyl]phenyl]-
1-propyl-2,3-dihydro-1-benzoazepin-4-carboxamide, N-[4-[N-
methyl-N-(tetrahydropyran-5-yl)amino]methyl]phenyl]-7-[4-
(2-propoxyethoxy)phenyl]-1-propyl-2,3-dihydro-1-
benzoazepin-4-carboxamide, 1-benzyl-7-[4-(2-
10 butoxyethoxy)phenyl]-N-[4-[N-methyl-N-(tetrahydropyran-4-
y1)amino]methyl]phenyl]-2,3-dihydro-1-benzoazepin-4-
carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-1-
cyclopropylmethyl-N-[4-[N-methyl-N-(tetrahydropyran-4-
y1)amino]methyl]phenyl]-2,3-dihydro-1-benzoazepin-4-
15 carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-N-[4-[N-methyl-
N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-1-phenyl-2,3-
dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-
butoxyethoxy)phenyl]-1-(3,4-methylenedioxy)phenyl-N-[4-[N-
20 methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-2,3-
dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-
butoxyethoxy)phenyl]-1-(2-methyloxazol-5-yl)-N-[4-[N-
methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-2,3-
dihydro-1-benzoazepin-4-carboxamide, 1-allyl-7-[4-(2-
butoxyethoxy)phenyl]-N-[4-[N-methyl-N-(tetrahydropyran-4-
25 y1)amino]methyl]phenyl]-2,3-dihydro-1-benzoazepin-4-

carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-1-(3-thienyl)methyl-2,3-dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-1-(thiazol-2-yl)methyl-2,3-dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-1-(1-methylpyrazol-4-yl)methyl-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-2,3-dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-1-(3-methylisothiazol-5-yl)methyl-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-2,3-dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-1-(1-ethylpyrazol-4-yl)methyl-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-2,3-dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-1-isobutyl-N-[4-[[N-methyl-N-(tetrahydropyran-5-yl)amino]methyl]phenyl]-2,3-dihydro-1-benzoazepin-4-carboxamide, 1-isobutyl-N-[4-[[N-methyl-N-(tetrahydropyran-5-yl)amino]methyl]phenyl]-7-[4-(2-propoxyethoxy)phenyl]-2,3-dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-1-(thiazol-5-yl)methyl-2,3-dihydro-1-benzoazepin-4-carboxamide, 7-[4-(2-butoxyethoxy)phenyl]-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-1-(1-methyltetrazol-5-yl)methyl-

2,3-dihydro-1-benzoazepin-4-carboxamide, or 7-[4-(2-butoxyethoxy)phenyl]-N-[4-[[N-methyl-N-(tetrahydropyran-4-yl)amino]methyl]phenyl]-1-(2-methyltetrazol-5-yl)methyl-2,3-dihydro-1-benzoazepin-4-carboxamide or a salt thereof.

5 5. Blood for transfusion or blood product, which contains a compound having a CCR antagonistic effect.

10 6. A method for preventing HIV infection which comprises administering a blood for transfusion or blood product each of which contains a compound having CCR antagonistic effect.

7. A method for preventing HIV infection which comprises administering an effective amount of a compound having CCR antagonistic effect in transfusing blood transfusion or using a blood product.

15 8. A method as claimed in claim 7, wherein the time of blood transfusion or blood product use is from one hour before blood transfusion or blood product use to the time of blood transfusion or blood product use.